

Science Empowers Global South Cooperation

Dialogue

By LONG Yun & BI Weizi

"Global cooperation is not a luxury. It is a necessity. It is through dialogue, trust and shared scientific work that we can build bridges and create solutions that leave no one behind." This powerful message was part of the speech given by Brazilian scientist Professor Helena B. Nader at the 2025 General Conference of the Alliance of National and International Science Organizations for the Belt and Road Regions (ANSO) on Science and Innovation 2025, which opened in Beijing on October 28.

Nader is the president of the Brazilian Academy of Sciences (ABC) and the first woman to hold that role in its history. She is also vice president of ANSO. As a biochemist by training, she has spent her career in research and teaching at the Federal University of São Paulo (UNIFESP), while actively pushing for greater inclusion in science, especially for women and Afro-Brazilian researchers. Her words in Beijing were not new. They reflect a belief she has long held: Science works best when it is open, collaborative and grounded in real human needs.

Fighting for equity within sci-tech community

Nader's journey to the pinnacle of scientific leadership began with a deep commitment to justice and inclusion. When she assumed office as president of the ABC in May 2022, she brought with her a clear mission: to make science more representative of the society it serves. Her inaugural speech set the tone, emphasizing gender, racial and ethnic equity within the scientific community.

Reflecting on her historic role as the first female president of the ABC, Nader told *Science and Technology Daily*, "[Throughout] my whole life I fought



Professor Helena B. Nader. (COURTESY PHOTO)

for equity and for the equilibrium of gender. So when I became [president], it wasn't planned. It was a consequence of my performance and presence in the academy."

Under her leadership, the ABC has made significant strides in increasing female representation among its members. Today, nearly 25 percent of full members are women, a marked improvement from previous decades.

However, she is quick to point out that progress remains uneven. "We have a problem in terms of equity," she admitted. "Brazil's population is half made up of people of African descent, mixed race, or indigenous backgrounds. But in our academy, we see very little representation from these groups."

Nader does not just care about numbers, and sees diversity not as a checkbox but as a scientific imperative. "When people with different backgrounds, cultures and life experiences join research, we ask better questions and come up with more meaningful solutions," she said.

South-South cooperation needed

As vice president of ANSO, Nader plays a pivotal role in shaping a new era

of international scientific collaboration. Since its inception, ANSO has grown into a dynamic network connecting about 80 science organizations across Asia, Africa, the Middle East and Latin America. For Nader, this platform represents a powerful opportunity to shift the center of gravity in global science.

"I am deeply aware of how important ANSO has become in just a few years," she observed. "It connects scientists, institutions and policymakers across continents and cultures. Our strength lies in our diversity. We are united by a shared commitment to advancing science for the benefit of all humankind."

She highlighted the urgency of the recent conference's theme "Science and Innovation for a Sustainable Future" as a call to action. But she also pointed to a critical gap. While ANSO has strengthened collaboration between Asian and African nations, engagement with Latin America and the Caribbean remains limited.

Nader is determined to bridge this divide. "I'm going to work harder on increasing collaboration between ANSO and Latin American countries,"

she affirmed. By pooling resources, knowledge and expertise, nations in the Global South can tackle shared challenges from biodiversity loss to sustainable agriculture on their own terms, without relying solely on traditional Northern partners.

This shift, she argued, requires a change in mindset, especially among young researchers. "In my time, collaboration meant going North, like the U.S. or Europe, but today we must encourage young scientists to look South, to build partnerships across the Global South. I think we should not take this geopolitical crisis as a barrier, but an advantage to increase South-South collaboration."

The joy of being a scientist

Beyond her leadership roles, Nader remains deeply connected to her role in the laboratory. As a professor at UNIFESP, where she earned her PhD and conducted groundbreaking research in biochemistry, she continues to mentor students and lead research projects. "I love being a scientist. I really do," she said with genuine happiness.

Even as an administrative leader, she makes time for the lab. "I still have graduate and undergraduate students working with me. Being around young minds, seeing their curiosity and passion is the best part of my life, besides my children." This hands-on engagement keeps her grounded and reminds her why science matters.

"Science is amazing. Choose it because you're going to have fun and you're going to be very happy." She described research as a uniquely empowering profession: "You are your own boss. You design your experiments, choose your methods and follow your curiosity. It's fantastic."

She emphasized the importance of mentorship and opportunity. "We need more youth in science. I think it's most relevant to support students with real research experience. That's how talent grows."

waterways or excavates new canals for flood discharge. This comprehensive project incorporates various hydraulic structures and uses all accessible natural resources, showcasing the unique characteristics and scientific advancements of ancient Chinese hydraulic engineering.

The Lingqu Canal was also developed as an irrigation system that transformed Xing'an into a highly productive agricultural region. Following the establishment of the People's Republic of China in 1949, the canal was completely restored and has since been preserved as a historical project.

Today, the Lingqu Canal is recognized as a significant cultural heritage site and serves various functions, including irrigation, flood control, water supply and a tourism attraction.

reef recovery capabilities and should be seen as a warning to the world.

However, he believes it is premature to assert that the entire coral reef system has crossed a critical point. In the long term, coral reefs will be irreplaceable as they are highly biodiverse shallow-water systems that serve as nurseries for many fish species, and maintain the food web from the shallows to the deep sea. If coral reef systems collapse, they will be replaced by algae-dominated, low-biomass systems. The impact of these systems on carbon cycles and marine ecosystem functions is not fully understood and remains highly uncertain, but the risks are significant.

In light of this urgent situation, the report emphasizes that the key to avoiding the most severe consequences lies in taking unprecedented and immediate emergency action.

China Impression

International Voices on China's Development

By Staff Reporters

A think tank report released on November 7 elaborates on the strategic layout of China's economic and social development during the 15th Five-Year Plan period (2026-2030).

The report was made public in Beijing at a symposium co-hosted by the national high-level think tanks of the Central Institute of Party History and Literature and the Xinhua News Agency.

Addressing the symposium, Qu Qingshan, head of the Central Institute of Party History and Literature, noted that the Party leadership's recommendations for formulating the 15th Five-Year Plan, adopted at the fourth plenary session of the 20th CPC Central Committee, serve as another mobilization and overall deployment to advance Chinese modernization.

In his speech, Fu Hua, president of Xinhua News Agency, said the think tank report represents the latest research achievement, based on a deep understanding of the guiding principles from the plenum. "It seeks to interpret the wisdom that continues to guide China's modernization journey," he added.

The international participants at the symposium also gave their perspectives on China's development model, underscoring its global relevance and distinctive characteristics.

Alberto Blanco Silva, Cuban ambassador to China, emphasized that China's development is not just about growth. It is also about stability, vision and the people. China's commitment to socialist modernization serves as a stabilizing force amid global uncertainty.

The ambassador also praised China's vision of a community with a shared future for humanity, especially its contributions to South-South cooperation and more equitable global governance.

Anna Malindog-Uy, director and vice president of external affairs at the Asian Century Philippines Strategic

Studies Institute, described China's modernization as a long-term historical process. She noted achievements in science field, rural revitalization and ecological civilization. She praised China's openness to the world through endeavors such as the Belt and Road Initiative. "China's development is not closed or exclusive," she said. "It offers opportunities for other developing countries."

Several foreign experts who have lived and worked in China for decades shared their firsthand observations of how China turns plans into reality.

Mustafa Mohamed Ahmed Yahia, Arabic expert at the Institute of Party History and Literature, has lived in China for over 30 years. He has observed six Five-Year Plans from beginning to implementation. "I have seen with my own eyes how China has transformed," he said. For him, the strength of China's planning lies in execution. "These are not just documents," he said. "They are action plans carried out year after year with consistency and discipline." From infrastructure to digital economy, from rural development to urban innovation, he has witnessed how policy translates into real improvements in people's lives.

Elena Kazanina, Russian expert at the Institute of Party History and Literature, spoke about the depth and continuity of China's governance philosophy. She has noted how the core principles remain stable across time. "What stands out is not only the pace of change but the consistency of direction," she said. "China's modernization is not copied from others. It is shaped by its own history, culture and socialist path."

The discussions at the forum reflected a growing international understanding of China's development, which is the result of long-term planning, strong institutions and a clear strategic vision. In a world facing turbulence, China's path offers stability, coherence and hope.

Lingqu Canal: Ancient Engineering Marvel

Traditional Eastern Wisdom

By BI Weizi

The Lingqu Canal, located in Xing'an county in the Guangxi Zhuang autonomous region, is a historic waterway that links the Xiang and Li rivers, connecting the Yangtze and Pearl River basins and facilitating travel between central China and the Lingnan region (present-day Guangdong and Guangxi).

Spanning a total length of about 36.4 km, it flows through the communities of Xing'an, Yanguan, Rongjiang

and Xiangli. Key components of the project include the Canal Head Complex, the North Canal and the South Canal.

Completed in 214 BC, this project is now recognized as the Lingqu Canal. Its construction had significant military implications for securing south China. For over two millennia, the canal was the main route for transporting water between Lingnan and central China, until the Yuehan and Xiangui railways were built in modern times.

The canal's fundamental design principle involves using weirs to raise the water level of the Xiang River. This directs one stream into an upper section

of the Li River (the present-day South Canal), while another stream is channelled through a newly constructed canal (the current North Canal) that flows into the Xiang River. This method effectively links the two rivers, enabling communication between the Yangtze and Pearl River systems.

At the head of the canal, overflow dams, training dikes and lateral overflow dams are used to manage water diversion and flood control. The canal was constructed through a combination of excavation and dam building. It features eased slopes with curves and controlled water flow via ancient locks (doumen) and weirs, and utilizes existing natural

the tipping point.

The *Global Tipping Point Report*, co-authored and released by 160 scientists from 87 institutions in 23 countries, states that as global warming surpasses the critical threshold of 1.5°C, the world is rapidly approaching a series of catastrophic tipping points, with the large-scale death of warm-water coral reefs being the first significant indicator. This means that humanity has entered a new "climate reality," where the stability of multiple critical systems on Earth is under unprecedented threat.

The report warns that global temperatures have already risen by approximately 1.4°C, while the thermal tipping point for warm-water coral reefs is estimated to be between 1°C and 1.2°C.

This means they have substantially crossed the point of no return. Even if warming can be kept below 1.5°C, there is a greater than 99 percent probability that coral reefs will disappear on a large scale. These ecosystems support the livelihoods of nearly one billion people and a quarter of all marine biodiversity. So the loss of coral reefs will exert a collapsing effect on all marine ecosystems.

Despite the grim situation, some experts and professors have offered differing opinions. Johan Rockström, director of the Potsdam Institute for Climate Impact Research, said that the ongoing fourth global coral bleaching event, occurring at an unprecedented frequency, is severely impacting coral



The symposium titled "Understanding the Fourth Plenary Session of the 20th Central Committee of the Communist Party of China" is held in Beijing on November 7. (PHOTO: XINHUA)

China Charts Green Course Toward Carbon Neutrality

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Significant progress has been made in energy conservation, emission reduction, circular economy development, and enhancement of carbon sink capacity. During the first four years of the 14th Five-Year Plan period (2021-2025), energy consumption per unit of GDP dropped by 11.6 percent, excluding non-fossil energy use and raw materials.

Tailored waste management policies have promoted the standardized and large-scale recycling of renewable resources. Integrated conservation of mountains, waters, forests, farmlands, grasslands, and deserts has been strengthened, boosting the carbon sink capacity of ecosystems. China is the first country to realize zero net land degradation, and its desertified and sandified areas are both shrinking.

At the same time, China is also advancing scientific and technological innovation, improving financial and policy support, and expanding market-based mechanisms to reinforce its carbon reduction efforts. Priority has been given to basic research on key technologies related to carbon neutrality, leading to

breakthroughs in renewable energy, energy storage, and smart power grids.

Climate change remains a global challenge that calls for collective action. Committed to multilateralism and cooperation, China is contributing to the development of a new model of global climate governance, the white paper said.

It has pushed for the signing and implementation of the Paris Agreement, and upheld the goals, principles and frameworks of the United Nations Framework Convention on Climate Change.

In addition, China has advanced high-quality international cooperation on green and low-carbon development under various mechanisms including the Belt and Road Initiative, offering financial, technological and capacity-building support to other countries of the Global South.

Looking forward, China stands ready to work with the international community to advance eco-environmental conservation, promote green development, address global climate challenges, protect the green Earth, and secure a cleaner and more beautiful world, the white paper concluded.

Is Earth at Climate Tipping Point?

Science Outreach

By Staff Reporters

According to a recent report, the globe is facing a "new reality" as it approaches the first of several catastrophic and possibly irreversible climatic watershed moments: the widespread destruction of coral reefs.

However, there are differing opinions on this assertion within the academic community. Some experts believe that it is premature to assert that the entire coral reef system has crossed